Abstract Submitted
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Calibration of the Jefferson Lab CLAS12 RICH detector[1] CONNOR PECAR[2], Duquesne University and Duke University, FATIHA BENMOKHTAR, Duquesne University, MARCO MIRAZITA, INFN, de Frascati, Italy, ANSELM VOSSEN, Duke University — A first Ring Imaging Cherenkov Detector (RICH) has been installed in Jefferson Lab's CLAS12 magnetic spectrometer. The RICH detector utilizes Cherenkov radiation to identify charged particles produced via Semi-inclusive Deep Inelastic Scattering (SIDIS), with the objective of distinguishing between protons, pions, and kaons in the 3-8 GeV/c momentum range. Particles enter the detector through a wall of aerogel tiles acting as a radiator (n = 1.05), producing Cherenkov radiation. Photons produced by particles entering at a large angle are reflected twice to reduce the size of the electronics panel. Single photon detection with nanosecond time resolution is achieved using a panel of Multi-Anode Photomultiplier Tubes (MAPMTs). This talk will present performance studies of the RICH which provided a deeper understanding of the aerogel tiles, the mirror system and the readout electronics.

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[2]Graduated from Duquesne, May 2020. Starting at Duke Fall 2020

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